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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PAUL, DISLER

ART UNIT

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2614

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/599,559		BREEBAART ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	DISLER PAUL		2614	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 11-20 are rejected under 35 U.S.C. 101 because, the "process" claims fail to tie with another statutory class (such as a particular Machine apparatus) or transform underlying subject matter such as (article or materials) to a different state or thing and thus, claims 11-20 are directed to non-statutory subject matter.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 6, 9-13,16, 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Faller et al. (US 2005/0195981 A1).

Re claim 1, faller et al. disclose of a multi-channel encoder arranged to process input signals conveyed in N input channels to generate corresponding output signals conveyed in M

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output channels together with parametric data such that M and N are integers and N is greater than M (fig.1-2 wt 102,203)), the encoder including: a down-mixer for down-mixing the input signals to generate corresponding output signals (fig.1 wt (110); par [0007]); and an analyzer for processing the input signals either during down-mixing or as a separate process, said analyzer being operable to generate said parametric data complementary to the output signals, said parametric data describing mutual differences between the N channels of input signal so as to allow substantially for regenerating during decoding of one or more of the N channels of input signal from the M channels of output signal, said output signals being in a form compatible for reproduction in decoders providing for N or for fewer than N output channels to enable backwards compatibility (fig.1-2 wt (114,214); par [0019,0029]/analyzer wt cues for decoding compatibilities from downmix signals).

Re claim 2, the encoder according to claim 1, wherein the encoder is a 5-channel encoder arranged to generate the output signals and parametric data in a form compatible with at least one of corresponding 2-channel stereo decoders, 3 channel decoders and 4-channel decoders 9[par [0029-0030]/using parameter and channel wt any amount channel for backward).

Re claim 3, the encoder according to claim 1, wherein the analyzer includes processing means for converting the input signals by way of transformation from a temporal domain to a frequency domain and for processing these transformed input signals to generate the parametric data (par [0010, 0019, 0021]/frequency analysis).

Re claim 6, the encoder according to claim 1, including a coder for processing the input signals to generate M intermediate audio data channels for inclusion in the M output signals, the analyzer being arranged to output information in the parametric data relating to at least one of: inter-channel input signal power ratios or logarithmic level differences; inter-channel coherence between the input signals; a power ratio between the input signals of one or more channels and a sum of powers of the input signals of one or more channels; and phase differences or time differences between signal pairs ([par [0019]/coherence and time difference).

Re claim 9, the encoder according to claim 1, wherein at least one of the input signals conveyed in the N channels corresponds to an effects channel (par [0016]/lfe and surround).

Re claim 10, the encoder according to claim 1 adapted to generate the output signals in a form suitable for playback using conventional playback systems (par [0033-0034]).

Re claims 11-13, 16, 19 have been analyzed and rejected with respect to claims 1-3; 6, 9 respectively.

Re claims 20-21 have been analyzed and rejected with respect to claim 1.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4-5; 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faller et al. (US 2005/0195981 A1) and Tsushima et al. (US 2004/0028244 A1).

Re claim 4, the encoder according to claim 3, wherein at least one of the down-mixer and the analyzer are arranged to process the input signals (fig.1-2 wt (114,214), But Faller et al. fail to disclose of the specific wherein processing as a sequence of time-frequency tiles to generate the output signals. But,

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Tsushima et al. disclose of a system wherein processing as a sequence of time-frequency tiles to generate the output signals (par[ 0008,0032]/frames of discrete signals). Thus, taking the combined teaching of Faller et al. and Tsushima et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Faller et al. with processing as a sequence of time-frequency tiles to generate the output signals for efficiently reproducing audio signal with fine precision.

Re claim 5, the encoder according to claim 4, but, the combined teaching of Faller et al. and Tsushima et al. as a whole, fail to disclose of wherein the tiles are obtained by transformation of mutually overlapping analysis windows. But, it is noted having the specific wherein the tiles are obtained by transformation of mutually overlapping analysis windows is the designer's preference. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Faller et al. and Tsushima et al. as a whole, with the tiles are obtained by transformation of mutually overlapping analysis windows for efficiently reproducing audio signal with fine precision.

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Re claims 14-15 have been analyzed and rejected with respect to claims 4-5.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faller et al. (US 2005/0195981 A1) and Scheiber (US 5,857,026).

Re claim 7, the encoder according to claim 6, but, Faller et al. fail to disclose wherein having phase differences and said phase differences are average phase differences. But, Scheiber disclose of a system wherein having phase differences (col. 3 line 15-25/phase difference as decolleration). Thus, taking the combined teaching of Faller et al. and Scheiber as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Faller et al. with wherein having phase differences for providing improved separation between decoded signals for sound localization.

However, the combined teaching of Faller et al. and Scheiber as a whole, fail to disclose of the phase differences are average phase differences. But, it is noted having the specific phase differences are average phase differences is the designer's preference. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined



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teaching of Faller et al. and **Scheiber** as a whole, with phase differences are average phase differences for providing improved separation between decoded signals for sound localization.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faller et al. (US 2005/0195981 A1).

Re claim 17, the encoder according to claim 6, but, **Faller et al. fail to disclose** wherein having power differences and said power differences are average power differences. But, it is noted having the specific wherein having power differences and said power differences are average power differences is the designer's preference. Thus, it would have been obvious for one of the ordinary skill in the art to have modified Faller et al. with having power differences and said power differences are average power differences for providing improved separation between decoded signals for sound localization.

7. Claims 8, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faller et al. (US 2005/0195981 A1) and kinoshita et al. (US 5,982,903).

Re claim 8, the encoder according to claim 6, wherein calculation of at least one of the phase differences, coherence

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data and the power ratios (see claim 6), but Faller et al. fail to disclose of the specific wherein said calculation is followed by principal component analysis (PCA) and/or inter-channel phase alignment to generate the N output signals. **kinoshita et al.** .

Disclose of a system wherein said calculation is followed by principal component analysis (PCA) to generate output signals (col.12 line 15-35; col.13 line 35-45/analysis on signals).

Thus, taking the combined teaching of Faller et al. and **kinoshita et al.** as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Faller et al. with calculation is followed by principal component analysis (PCA) to generate output signals for obtaining sound signal of most signal energy for localizing sound image.

Re claims 18 have been analyzed and rejected with respect to claim 8.

8. Claims 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faller et al. (US 2005/0195981 A1) and Herre et al. (US 7,394,903 B2).

Re claim 22, **Faller et al. disclose of** a decoder operable to decode encoded output data as generated by an encoder according to

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claim 1, said encoded output data and associated parametric data generated from input signals of N channels such that  $M < N$  where M and N are integers (fig 1-2), the decoder including a processor: for receiving the encoded output data to a frequency domain (fig.2 wt (2222); par [0021]/ also the limitations after the word "operable" does not further positively limit the claim language, thus Faller et al. meet the limitation since the decoder of Faller et al. could have been operable also of doing same limitation feature).

But, **Faller et al. fail to disclose of the specific wherein** converting encoded output data from a time domain to a frequency domain. But, **Herre et al. Disclosed of a system wherein** converting encoded output data from a time domain to a frequency domain (fig.12; col.3 line 47-55). Thus, taking the combined teaching of Faller et al. and **Herre et al.** as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Faller et al. with converting encoded output data from a time domain to a frequency domain for providing parameter cues of reconstructed multi-channel at an output to be similar to respective cues of original channel.

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The combined teaching of Faller et al. and Herre et al. as a whole, teach of applying the parametric data in the frequency domain to extract content from the M channels to regenerate from the M channels regenerated data content corresponding to input signals of one or more of N channels not directly included in or omitted from the encoded output data; and for processing the regenerated data content for outputting one or more of the regenerated input signals of N channels at one or more outputs of the decoder (fig.2 wt (218,222,226); par [0019,0029]/re create original signals).

Re claim 23, the decoder according to claim 22, wherein said processor is operable to apply an all-pass decorrelation filter to obtain decorrelated versions of signals for use in regenerating said one or more input signals of N channels at the decoder (the limitations after the word "operable" does not further positively limit the claim language, thus Faller et al. meet the limitation since the processor of Faller et al. could have been operable also of doing same limitation feature).

Re claim 24, the decoder according to claim 23, wherein the processor is operable to apply inverse encoder rotation to split

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signals of the M channels and decorrelated versions thereof into their constituent components for regenerating said one or more input signals of N channels at the decoder ( see claim 23 rejection).

Re claim 25, the decoder according to claim 24, said decoder being operable to generate its one or more decoder outputs solely from said encoded output data received at the decoder (see claim 24 rejection).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DISLER PAUL whose telephone number is (571)270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./  
Examiner, Art Unit 2614

/Vivian Chin/  
Supervisory Patent Examiner, Art Unit 2614